

Linear Functions Review

1. Given the pattern below, identify the *initial value*, *rate of change*, and write an equation.



Case #1



Case #2



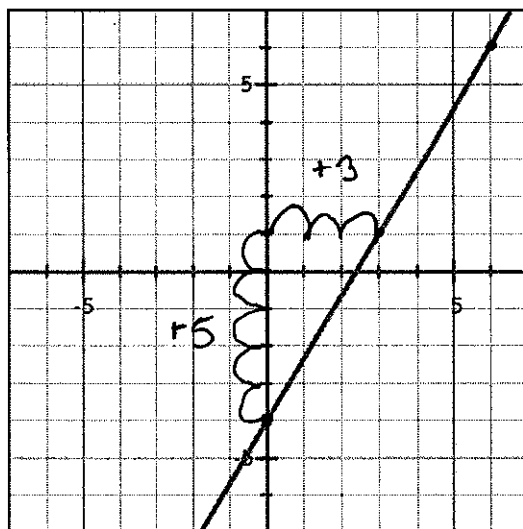
Case #3

Initial value? 3 (slope, married to x)
 Rate of change? 3 (b-value, by itself)
 Equation? $y = 3x + 3$

2. Fill out a table of values that are solutions to the equation $y = -4x + 5$

x	0	1	2	3	4
y	5	1	-3	-7	-11

3. Identify the slope, and y -intercept given the following graph.



Slope? $\frac{5}{3}$

y -intercept? -4

4. What are the slope and y-intercept of this equation?

$$y = \frac{1}{5}x - 14$$

Slope? $\frac{1}{5}$

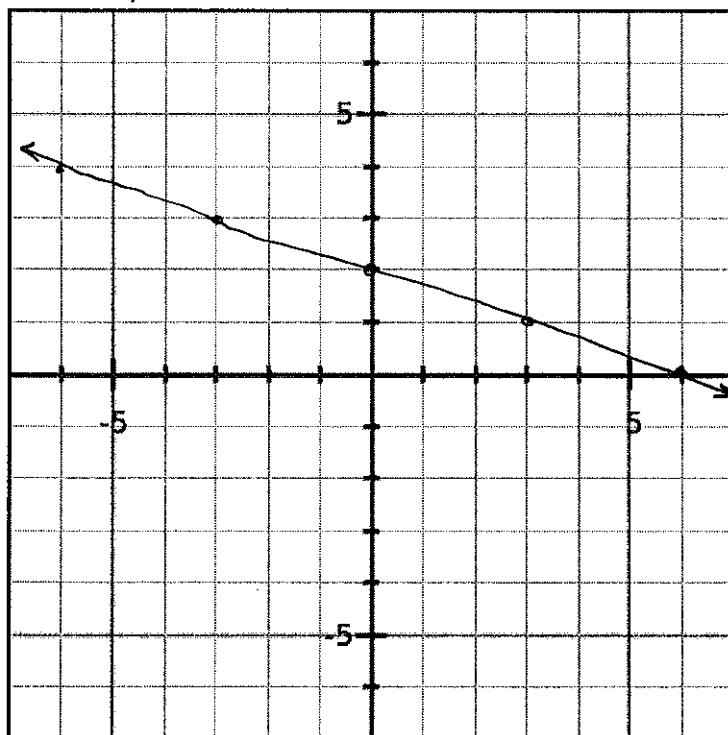
Y-intercept? -14

5. Two points on the line are (2, 5) and (-6, 8). Find the slope of this line.

$$y = \frac{8-5}{-6-2} = \frac{3}{-8}$$

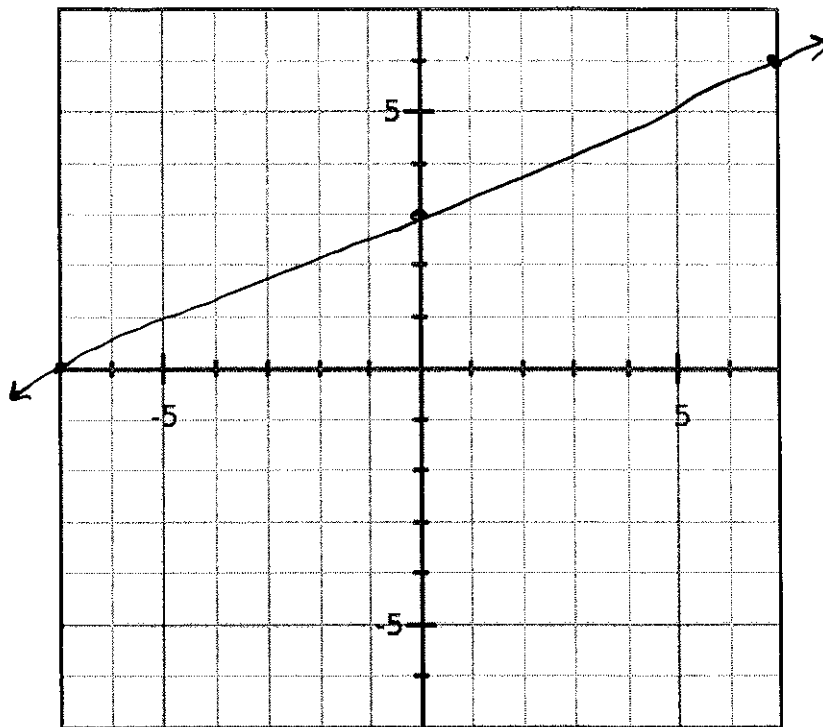
6. Graph the equation:

$$y = -\frac{1}{3}x + 2$$

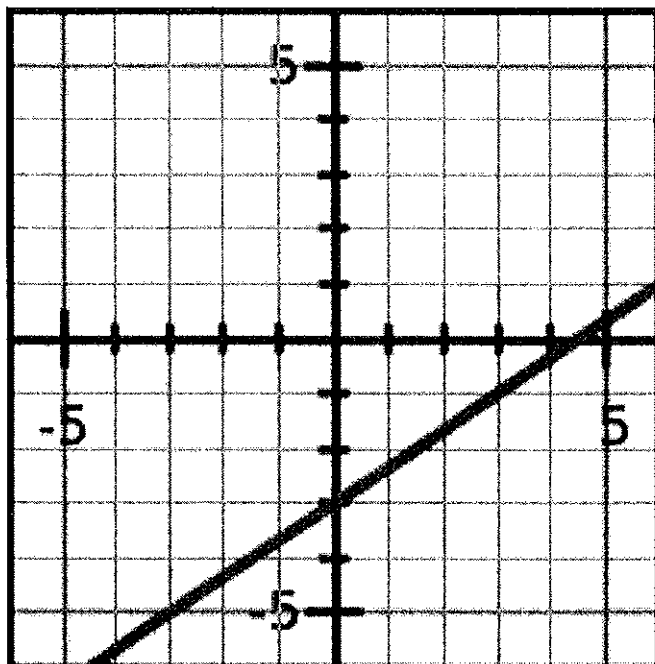


7. Graph the following standard form equation:

$$\begin{aligned} 3x - 7y &= -21 \\ -3x & \quad -3x \\ \frac{-7y}{-7} &= \frac{-21 - 3x}{-7} \\ y &= 3 + \frac{3}{7}x \end{aligned}$$



8. Write the equation for the following line.

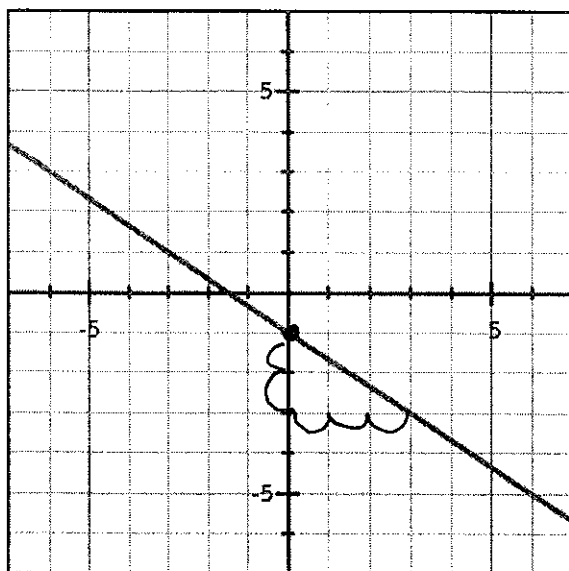


Equation? $y = \frac{2}{3}x - 3$

9. Daud was given the equation:

$$y - 3 = -\frac{2}{3}(x + 6)$$

He correctly graphed the following line. Show the work that he had to do in order to graph the equation. Label important pieces.



Show Daud's Correct Work:

$$\begin{aligned}
 y - 3 &= -\frac{2}{3}(x + 6) & -\frac{2}{3} \cdot 6 \\
 y - 3 &= -\frac{2}{3}x + -4 & \\
 +3 & & +3 \\
 \hline
 y &= -\frac{2}{3}x - 1 \\
 \text{slope} & \quad \quad \quad \text{y-intercept}
 \end{aligned}$$

10. Answer the following function notation problems based on functions $f(x)$ and $g(x)$ below

$$g(x) = 3x - 5$$

$$\begin{array}{cc}
 x & y \\
 \text{a. } f(3) & = -4
 \end{array}$$

$$\begin{array}{cc}
 x & y \\
 \text{b. } g(-4) & = -17
 \end{array}$$

$$\begin{array}{cc}
 \text{c. } f(x) = 1 & \text{(give both answers!)} \\
 x = -2 & x = 2
 \end{array}$$

$$\begin{array}{cc}
 \text{d. } g(x) = 10 & x = 5
 \end{array}$$

$$10 = 3x - 5$$

